

Date: Thu, 1 Apr 93 09:39:49 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #405
To: Info-Hams

Info-Hams Digest Thu, 1 Apr 93 Volume 93 : Issue 405

Today's Topics:

Amateur Radio Elmers List Info and Administrivia
 Another 3rd Party Question
 Antenna system for a sailboat.
ARRL living in the past? (was Re: motive ...)
 feeding dipole with 300-ohm twinlead
 GB2SEG expedition
 Kantronics vs MFJ Opinions?
Microwaves Over Seawater: Why It Works So Well
 Worked NF6???/KP1, was this Navassa Island?

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 1 Apr 93 12:00:14 GMT
From: ogicse!emory!wupost!usc!sol.ctr.columbia.edu!news.unomaha.edu!
news@network.UCSD.EDU
Subject: Amateur Radio Elmers List Info and Administrivia
To: info-hams@ucsd.edu

Posted-By: auto-faq 2.4
Archive-name: radio/ham-radio/elmers/admin
Revision: 1.3 01/30/93 16:05:01
Changes: Updated file-retrieval and "ham" origin information

This administrivia file and the companion Amateur Radio Elmers Resource
Directory are intended for non-commercial distribution via Usenet. Any
other uses, please E-mail for permission.

A Brief Historical Overview:

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If there is any one constant in the changing state of the communications art, it is that "Hams" (Amateur Radio Operators) have always been on the forefront of it. Rumors abound where the term "Ham" came from. Some of the more amusing are described at the end of this article.

Regardless of origin of the name, a "Ham" is universally recognizable as one who experiments in radio and communications.

Whether it be constructing a low-power CW radio with vacuum tubes, or designing TCP/IP packet networks, such experimentation has historically spilled over into the mainstream such as was the case with Edwin Armstrong, who developed the regenerative oscillator and FM radio, or General Curtis LeMay (W6EZV) who was instrumental in making Single-Sideband the communications standard for the Strategic Air Command (1947-1992, now reorganized into a joint command called StratComm) and eventually the U.S. Air Force. Although packet-switching techniques originated from DARPA (Defense Advanced Research Projects Agency) and the ARPANet, no one can deny the tremendous influence that amateurs have had in demonstrating the viability of TCP/IP and AX.25 communications via radio links. The efforts of AMSAT (the Amateur Satellite Corporation), including the development of many ham satellites and the low-orbiting Microsats (communications satellites no bigger than a breadbox that use store-and forward packet techniques), have certainly advanced the state-of-the-art in communications, one of the defined purposes of the Amateur Radio Service, as recognized by international treaty.

Since in many cases hams are writing "the book", there is often no "book" or other established reference for a beginner to refer to. Traditionally, information has been passed on from ham to ham via word-of-mouth. Like many of the traditional crafts, a variation of the Master-Apprentice system has emerged, the Elmer-Novice relationship. Called "Elmers" because they are usually older and wiser, having the benefit of many years in the hobby, including several failed projects, and an electric shock or two, they have traditionally been the mainstay of amateur radio, and the source of many new hams, particularly those interested in working on emerging technologies.

Even more importantly, Elmers provided an outlet for the impatient newcomer who wanted "to know everything, and right away." Faced with such a request, a good Elmer will smile and proceed to lead the novice through some project or operating experience. Several hours, days, or weeks later, the novice would have his answers, but would have earned them. Even better, the sense of accomplishment would boost the novice's

confidence and nudge him or her down the road to being a model, experienced ham operator.

Many present hams feel that such an experience is missing today. In today's hustle-bustle world, the response to such natural curiosity and desire to learn is, more often than not, "I'm too busy" or "RTFM." As a result, the quality of new hams declines and the knowledge and operating habits they develop in their first formative months and years leave much to be desired. And the very same hams who claim that they "can't understand the new generation" also, in almost the same breath, lament about the "decline of amateur radio."

What is an Elmer today?
+++++

An Elmer today is of any age, male or female, who has some expertise and is willing to share it with beginners. Elmers don't even need to be licensed amateurs, just people with knowledge in some area of electronics or communications technology.

What is a Usenet Elmer?
+++++

With the ever-widening scope of the Internet, and the amateur radio newsgroups on Usenet, the potential for Elmers to share their knowledge to a wide audience has never been greater. To that end, I have started to maintain a list of such Elmers. Volunteers need only send me their name, E-mail address, and area of expertise. I have set up an administrivia mailbox for this purpose (elmers-request@unomaha.edu, the default Reply-To: of this message).

Those desiring a more extensive list, or who need more specific assistance, are encouraged to contact Rosalie White, WA1ST0, Educational Services Manager at the American Radio Relay League, 225 Main St., Newington, CT 06111 or via electronic mail addressed to rwhite@arrl.org.

How may I obtain the latest copy of the Elmers List?
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There are currently 4 ways of obtaining the Elmers List. Any site at least reachable by Internet E-mail can use options 3 or 4:

1. Usenet News: The latest copy of the list can be found in the companion posting to this message, "Amateur Radio Elmers Resource Directory." Since the list is cross-posted to rec.radio.amateur.misc, rec.radio.info, rec.answers, and news.answers on the 1st of each month, with an expiration date 6 weeks into the future, there should always be

a copy available at most news sites. Check your newsreader documentation for information about reading previously-read articles.

2. Anonymous FTP: If your site is directly connected to the Internet, you may retrieve the latest copy via File Transfer Protocol (FTP) from the following sites:

```
ftp.cs.buffalo.edu    /pub/ham-radio/elmers*  
pit-manager.mit.edu  /pub/usenet/news.answers/radio/ham-radio/elmers/
```

3. Mailing-List: Since the list is cross-posted to rec.radio.info, the latest copy may be obtained from the mailing-list gateway for that newsgroup (along with many other informational articles about radio) when it is published each month. To subscribe, send E-mail to:

```
listserv@ucsd.edu
```

and in the BODY (not the Subject) of the message, write:

```
subscribe radio-info
```

The server may not be able to determine your return address. In that case write:

```
subscribe radio-info (your E-mail address)
```

You should get an acknowledgement very shortly.

4. Mail-Server: If you don't want to read through the entire gateway of rec.radio.info, or want a copy of the list right away, send E-mail to:

```
mail-server@pit-manager.mit.edu
```

and in the BODY (not the Subject) of the message, write:

```
send usenet/news.answers/radio/ham-radio/elmers/admin  
send usenet/news.answers/radio/ham-radio/elmers/list  
send usenet/news.answers/radio/ham-radio/elmers/diff
```

and the latest copy of the list should be sent to you E-mail within 24 hours (the mail-server uses batch priority to reduce system demand).

How may I contribute to the Elmers List?

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+++++
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By using this resource, you are benefitting the net by obtaining assistance in the fastest and most efficient way possible. By

volunteering to appear on this list, you are contributing to the good reputation of the radio-related newsgroups.

Thanks to all the volunteer Elmers, as well as courteous list users, for making this service a success.

--

73, Paul W. Schleck, KD3FU

pschleck@unomaha.edu (personal mail)

elmers-request@unomaha.edu (Elmers List administrivia)

* Possible origins of the word HAM:

The acronym "Home Amateur Mechanic" or...

from the Cockney pronunciation of "L'amateur" or...

the initials of the founder of the American Radio Relay League, Hiram Maxim, W1AW (his actual middle name being Percy apparently notwithstanding) or...

from the call letters of one of the first amateur stations at Harvard, H.A.M. (please, no flames from W1XM at MIT)

Dale Mosby, N7PEX, offers the explanation that HAM must stand for "Hardly Any Money," considering the investment one could make in the hobby.

Knowledgeable individuals from the American Radio Relay League (ARRL), and other radio historians, seem to agree that the terms "Ham" and "Lid" (an inept operator) both originated with landline telegraphy. A "Ham" was a show-off and a "Lid" was a telegraph operator so inexperienced, he had to use a pot or can lid to rest his telegraph sounder on to properly copy the code.

As an interesting historical footnote, early telegraph operators may have been the first to experience the infamous curse of our communications age, Repetitive Stress (or "Carpal Tunnel") Syndrome (called "Glass Arm" in those days, which encouraged the invention of the semi-automatic or "bug" key).

(Larry E. McDonald, N6ZMB, wrote to point out another plausible origin, which doesn't necessarily contradict the ARRL version. The term "ham" may have been derived from "ham-fisted" or "ham-handed" to describe poor telegraph operators who were hired from the ranks of radio operators. Or maybe "ham-fisted" and "ham-handed" are derived from "ham." Who knows?)

Date: Thu, 1 Apr 93 01:05:53 GMT
From: unogate!news.service.uci.edu!usc!zaphod.mps.ohio-state.edu!darwin.sura.net!
news-feed-1.peachnet.edu!umn.edu!uum1!kksys.com!edgar!brainiac!moron!
biggus.g4jec.tcman.ampr.org!@mvb.saic.com
Subject: Another 3rd Party Question
To: info-hams@ucsd.edu

In article <1993Mar30.073714.23515@usl.edu>, cfm1471@ucs.usl.edu (Morrison Charles F) writes:

|> My fiance' is traveling to France this summer, and Im not looking forward
|>
|> What is the process? I speak with British hams all the time, whats to
|> hurt if i send traffic to a friend in England, thats not a ham. Am i
|> not supposed to reveal matters of military intelligence?
|>

Charlie:

The problem is that in G/F-land's (and, indeed, probably most of EU), third-party traffic to NON-amateurs is forbidden FULLSTOP! It has nothing to do with restricting access from US amateurs specifically.

In recent years the restrictions have been eased somewhat, however, this is normally of the from that at special event stations (e.g. GB calls from the UK) non-amateurs are allowed to "speak into the microphone", but only for period not exceeding 90 seconds or something.

Sorry!

--

73 Chris Cox W0/G4JEC
chrisc@biggus.g4jec.tcman.ampr.org chrisc@biggus.moron.vware.mn.org
Eleventh Hour Contest Group - North American Chapter; Minneapolis, MN
Twin Cities Metro Area Network node (biggus.g4jec.tcman.ampr.org)
**** And lest they forget: ****
Packet radio fiends really enjoy playing with their bits...

Date: 1 Apr 93 16:53:19 GMT
From: ogicse!uwm.edu!spool.mu.edu!sgiblab!news.kpc.com!kpc!nat@network.UCSD.EDU
Subject: Antenna system for a sailboat.
To: info-hams@ucsd.edu

Hello,

I am posting this for my friend Greg Walsh (gvw@kpc.com). A reply to either

me or Greg or the net would be fine.

I am installing a marine HF SSB transceiver (ICOM M600) and an automatic antenna tuner (ICOM AT-120) on my 42' steel-hulled sailboat and would like to get some advice on matters relating to the antenna system:

A) At some later date, when I have my General class amateur license I would also like to install an appropriate amateur HF band transceiver. I know that I can legally share the antenna system with the ICOM M600 transceiver. However, I was wondering whether the definition of antenna system extends to automatic antenna tuners such as the ICOM AT-120 I am installing with the M600. Or do I need a separate tuner? What is an appropriate method to switch the antenna connection?

B) For the M600 installation I would like some advice on location of the automatic antenna tuner and its connections to the antenna and ground system:

First some background. Standard sailboat HF antenna practice is to insulate and use as an antenna a portion of one of the stainless steel wire backstays which extend from the top of the mast to the stern of the boat. The insulated portion is around 12 meters long. I have three choices as to the location of the antenna tuner, which is contained in a weatherproof enclosure.

1) At the stern of my boat is an 8 foot high tubular stainless steel framework arch on which are mounted various things like radar and GPS antennas, solar panels and a wind generator. It would be convenient to mount the AT-120 on this arch where there would then be only about a 3 foot run, safely out of reach of anyone on deck, to the insulated portion of the backstay serving as the antenna. If this option were chosen I was wondering whether I could just connect the ground terminal of the AT-120 to the mounting arch itself since it in turn is welded in numerous places to the steel deck and hull of the boat. Are there any negative points to using the arch itself as part of the ground system. Is there any point in running a heavy stranded copper cable down to deck level for the ground?

2) Another mounting option is to mount the AT-120 on the deck with a longer insulated run of high voltage cable up to the insulated portion of the backstay. This option has the disadvantage of using up precious deck space but does not incorporate the arch in the ground system.

3) Finally, the AT-120 could be mounted inside the hull with the antenna lead-in passing through the deck. This later option has the advantage of keeping the supposedly weatherproof AT-120 out of the weather but seems electrically questionable as some portion of the

antenna is now inside the grounded hull. The run to the antenna, from the output of the AT-120 would probably be on the order of 6 meters in this case.

Greg Walsh.

--

Natarajan Gurumoorthy KD2ZS/AE Kubota Pacific Computer, Inc.
nat@kpc.com 2630 Walsh Avenue
Phone 408 987 3341 Santa Clara, California 95051.

Date: 1 Apr 93 14:40:29 GMT
From: pa.dec.com!decabo.abo.dec.com!anarky.enet.dec.com!brewer@decwrl.dec.com
Subject: ARRL living in the past? (was Re: motive ...)
To: info-hams@ucsd.edu

In article <jfhC4onx8.4I4@netcom.com>, jfh@netcom.com (Jack Hamilton) writes...
>BR.SJE@forsythe.stanford.edu (Steve Eastman) wrote:

>

>>>Your Call:

>>On its way -- any day now. I passed the tech. test on Jan 30, 1993.

>

>January 31, you mean.

>

>>>3. What would/did motivate you to join ARRL?

>>I will join when they explicitly deny any bias against gay folk.

>

>Unlike Steve, I will join the ARRL when my license arrives, because I think
>the ARRL performs valuable services. It is unfortunate, though, that the
>ARRL is so regressive in its social policies. Three examples:

>

>1) The ARRL has refused, according to several sources, to accept an ad for
> the Lambda Amateur Radio Club, a group of gay and lesbian amateur radio

Uh Oh! Political Correctness Flamefest alert!
/john

Date: Wed, 31 Mar 1993 18:14:58 -0500
From: dog.ee.lbl.gov!overload.lbl.gov!agate!spool.mu.edu!yale.edu!think.com!spdcc!
merk!harvee.billerica.ma.us!esj@network.UCSD.EDU
Subject: feeding dipole with 300-ohm twinlead
To: info-hams@ucsd.edu

In <BAT.93Mar28183747@gdstech.GRUMMAN.COM>, Pat Masterson writes:

>If you have a good matchbox, make the dipole as long as you can.
>Anything at 130' or so is great. Feed it with any twin lead you can
>(450 is a little better than 300 ohm line), and drive it with
>your matchbox. You will have a great antenna on any band. Especially
>if it has some altitude.

I'd like to second this. I built one of these years ago and it worked great as long as it stayed suspended between the trees :-). One note, try to keep the feed line perpendicular to the antenna for as great a distance as possible. supposedly it keeps the system balanced and lets the antenna radiate and not the feed line.

--- eric

--

HOME: esj@harvee.billerica.ma.us HAM ka1eec
WORK: 617.630.4687 (w) esj@ruby.polaroid.com
source of the public's fear of the unknown since 1956

Date: 1 Apr 93 14:12:56 GMT
From: pipex!marble.uknet.ac.uk!uknet!edcastle!spider!raft.spider.co.uk!
jmorris@uunet.uu.net
Subject: GB2SEG expedition
To: info-hams@ucsd.edu

GB2SEG expedition

GB2SEG (Scottish Expedition Group) will be operating from the most southerly point in Scotland - the Mull of Galloway (WAB square NX13, locator IO74NP) - from about 1500utc on Friday, 2 April until the evening of Sunday, 4 April.

Operation will be on SSB and CW on all hf bands from 1.8 to 28 MHz (including the WARC bands) and on two metres FM, SSB and CW.

GB2SEG will also be operational later in the year from the most westerly, easterly and northerly points on the Scottish mainland.

Look out for the "lighthouse" award for working GB2SEG at all four locations - and at other exotic spots round the Scottish coastline.

For information or skeds contact GM2TW or GM7KHQ at their callbook addresses (or spot GM2TW lurking on hf), or GM4ANB via packet.

73, John, GM4ANB @ GB7EDN.#77.GBR.EU

--

John Morris != Spider Systems jmorris@spider.co.uk GM4ANB@GB7EDN.#77.GBR.EU

Date: 1 Apr 93 16:04:14 GMT
From: ogicse!news.tek.com!cascade.ens.tek.com!ronk@network.UCSD.EDU
Subject: Kantronics vs MFJ Opinions?
To: info-hams@ucsd.edu

In article <1993Apr1.012637.7799@usl.edu>, cfm1471@ucs.usl.edu (Morrison Charles F) writes:

...
|> the new KamPlus, due out soon, if not already! About \$320, the guys at
|> Kantronics told me.. Sounds like its just a fancy kam with version 6.0 in it.

I also have the KAM and love it! The upgrade for KAM to KAM+ was announced recently. One of the big features is increase from 32k RAM for mailbox operations to 100k RAM.

The dual VHF/HF capability has been available since at least v4.0 (my version).

--
Ron Kirkpatrick
News Administrator/Postmaster
Tektronix, Inc
503-627-6707

Date: Thu, 1 Apr 1993 14:16:16 GMT
From: decctrl!news.crl.dec.com!halberty@decwrl.dec.com
Subject: Microwaves Over Seawater: Why It Works So Well
To: info-hams@ucsd.edu

I wrote this article for a club newsletter a few years ago this month.
I thought you might find it interesting and informative even today.
73, KB1RT

=====

Microwaves Over Seawater: Why It Works So Well
Dan Halbert, KB1RT

For many years, radio scientists have been puzzled by persistent reports of superior microwave propagation over certain regions of the ocean. Good reports on 10 GHz have been obtained at distances considerably greater than line-of-sight. Now it appears that the phenomenon is, remarkably, tied in with the biology of sealife, and is not merely a physical effect due to seawater conductivity or tropospheric effects.

Dr. Leon Fischwasser, of the German Underwater Naval Radio laboratory, had been studying radio propagation through seawater for more than a decade, but had been stymied by mysteriously inconsistent results. The only correlation seemed to be the cloudiness of the water near the surface. After puzzling over this for more than a fortnight, Dr. Fischwasser decided to consult with an old school chum of his, Jacques Tete-du-poisson, at the French Academy for Small Sealife. Dr. T.-d.-p. told his friend that the cloudy patches he was observing were actually huge swarms of plankton, tiny sea creatures munched on by whales and other denizens of the deep.

Dr. Fischwasser, armed with this amazing new knowledge, returned to his laboratory with samples of the plankton-rich seawater he had collected at particularly good propagation sites. He then tried transmitting on a variety of frequency bands through beakers of the creatures. At certain frequencies and in certain directions, there was a definite refractive effect. Microscopic examination of the water revealed that the plankton, which grew in areas of the sea rich in iron leaching from underwater volcanoes, were all lined up with the earth's magnetic field, and in fact, were perpendicular to the direction of best refraction of the radio waves.

Dr. Fischwasser was flabbergasted by this discovery, and quickly called in the leading expert on this variety of plankton, Prof. Jonah Gefilte, at the Israeli Institute for the Almost Invisible. Prof. Gefilte pointed out that the creatures in question, known as *primus aprillius*, resemble tiny worms, segmented in the middle by a hard chitinous structure. Dr. Fischwasser immediately realized that what he had were tiny dipoles that were absorbing radio waves selectively. Since all the subminiature shrimp were lined up like compass needles, he had a beaker in which millions of tiny Yagi-Uda antennas were being created and destroyed every second by simple Brownian motion.

Dr. Fischwasser has published a paper on this amazing effect in the Danish journal *Radio og Smorgasbord*. However, since the paper was published, a number of other researchers have pointed up earlier work showing that Dr. Fischwasser has independently rediscovered a known effect, albeit manifested in a new way.

Indeed, the earliest known observation of such an effect was by Marconi himself. Marconi was busy trying out some new apparatus one day, and because of problems, worked well into the normal dinner hour. Unwilling to leave the lab, he started some pasta boiling in a tall but clean Leyden jar. After a minute, he was startled to find that his detector was suddenly working much better. A brilliant experimentalist, he noticed that the spaghetti he was preparing was interposed between spark gap and coherer. Indeed, as the spaghetti

absorbed more water and collapsed, the effect vanished. However interesting this effect was, Marconi did not follow up, since pasta at the wavelengths he was interested in using would have been ridiculously long.

Marconi did, however, patent the idea, and later licensed it to the Mueller-Prince Radio Company, which used it both in their Marinarodyne and Al-Dente-20 receivers. A particularly clever technique was the use of lasagna in order to broadband the response. Mueller-Prince folded after only a few years of operation, though, because frequent boilovers of the salted water tended to corrode the rest of the radio, and they acquired a reputation for unreliability.

So this remarkable phenomenon lay obscured in old radio fix-it manuals until rediscovered by Dr. Fischwasser. And since the tiny radio-plankton are eventually eaten by the largest living creatures on the earth, we can truly say that this is a whale of a tale. --KB1RT

Date: Thu, 1 Apr 1993 15:33:46 GMT
From: newshub.nosc.mil!vela.acs.oakland.edu!cs.uiuc.edu!wupost!uwm.edu!linac!att!cbnewsm!jeffj@network.UCSD.EDU
Subject: Worked NF6??*/KP1, was this Navassa Island?
To: info-hams@ucsd.edu

Last night I worked NF6***/KP1 at 0238 UTC. I was hoping that someone could fill in the rest. Namely, the rest of his call and if this was Navassa Island. He was sending just above the range where I can copy CW well. Something about the way he sent I just couldn't copy his call exactly. Might have been a KP0 but I hope not! 8-) Thanks for any and all help here! 73!

Jeff

--
Jeff Jones AB6MB | OPPOSE THE NORTH AMERICAN FREE TRADE AGREEMENT!
jeffj@seeker.mystic.com | Canada/USA Free Trade cost Canada 400,000 jobs.
Infolinc BBS 415-778-5929 | Want to guess how many we'll lose to Mexico?

Date: 1 APR 93 09:59:14
From: pa.dec.com!e2big.mko.dec.com!nntpd.lkg.dec.com!ryn.mro4.dec.com!
cimfie.enet.dec.com!taber@decwrl.dec.com
To: info-hams@ucsd.edu

References <C4pH5D.Gr2@hpuerca.atl.hp.com>, <jfhC4pp4z.5sM@netcom.com>,
<1993Mar31.150306.12177@cbnews1.cb.att.com>.com

Subject : Re: ARRL living in the past? (was Re: motive ...)

In article <1993Mar31.150306.12177@cbnews1.cb.att.com>, rlt@cbnews1.cb.att.com (r l taylor) writes...

>Just MHO, but I can see a couple of ways that could be interpreted. It
>could be:

>

>"Look! We have women in the organization! (See how open-minded and tolerant
>we are to allow these token females to take part!)"

>

>Or:

>

>"Look! We have women in the organization! (This is no longer a hobby for
>men only. Lots of women are active hams these days. Ham radio is for
>*everyone*, and you don't need to be intimidated if you don't fit the old
>stereotypes.)"

>

>Being the eternal optimist, I choose to believe that it is the latter
>message that ARRL wishes to convey...

I think that the way it is interpreted says more about the person doing
the interpretation than it says about the ARRL.

Just a thought.

>>>==>PStJTT

KC1TD@K1UGM.MA.USA.NA

Date: 1 Apr 93 15:23:28 GMT

From: ogicse!hp-cv!sdd.hp.com!hpscit.sc.hp.com!hpuerca.atl.hp.com!

edh@network.UCSD.EDU

To: info-hams@ucsd.edu

References <1993Mar31.064154.29965@us1.edu>, <1pcsdu\$m2r@network.ucsd.edu>,
<1993Apr1.011745.7600@us1.edu>

Subject : Re: Highways, holes and such (Was: Glass mount antennas..etc)

In <1993Apr1.011745.7600@us1.edu> cfm1471@ucs.us1.edu (Morrison Charles F) writes:

>Im sure dealers like those little black gromets, eh?

>I need a loan then, cause \$15,000 must be pocket change for ya.

>Charlie

I'm sure I'm not going to be the first to say this, but:

- a) You can use body putty and paint.
- b) You can use paintable plugs.
- c) You can put on a cellular antenna and ask for more trade value!

On the last statement: unless the car is antique and pristine condition when you buy it, cars do not have investment value. Even the nicest of automobiles of great expense (such as limo's) often (maybe even mostly) have holes drilled for the cell phone antenna and TV antenna, etc. And I've seen wonderfully restored antiques with freshly installed FM antenna holes so the driver could enjoy his favorite stereo station.

A car is like many other high-cost objects:
either you own it or it owns you.

Cheers & 73 Ed Humphries N5RCK
Hewlett-Packard NARC Atlanta GA
edh@hpuerca.atl.hp.com

End of Info-Hams Digest V93 #405
